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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,278	05/08/2001	Thomas M. Rothwein	M-11555 US	3426

33031 7590 03/23/2005

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EXAMINER

PHAM, KHANH B

ART UNIT	PAPER NUMBER
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2167

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/851,278	Applicant(s) ROTHWEIN ET AL.	
	Examiner Khanh B. Pham	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29,33-35,38-41,44-47 and 50-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29,33-35,38-41,44-47 and 50-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed November 1, 2004 has been entered. Claims have been amended.

- Claims 31, 37, 43, 49 and 55 have been canceled.
- Claims 1, 6, 11, 16 and 21 have been amended.
- Claims 1-29,33-35,38-41,44-47,50-53 are pending in this Office Action.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-5, 26-29, 31 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

- The language of the claims raises a question as to whether the claims is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101.
- Regarding claims 1-5, 26-29, 31, it is unclear from the claim language whether the method is being accomplished by a computer or whether it is

merely data on a computer being represented, e.g., on a piece of paper as in the drawing figure 1 of the instant application.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-29,33-35,38-41,44-47,50-53 are rejected under 35 U.S.C. 102(b)** as being anticipated by Pasi et al. ("Calculating Attribute Values Using Inheritance Structures in Fuzzy Object-oriented Data Models"), hereinafter referred to as "**Pasi**".

As per claim 1, Pasi teaches a method of arranging objects comprising:

- "setting a class hierarchy, wherein the class hierarchy comprises an upper level class and a lower level class" at the paragraph bridging Col.1 and Col. 2, page 557;

(Pasi teaches classes can be organized into hierarchies comprising "supperclass" and "subclass")

- "the objects are members of at least one of the upper level class and the lower level class" at the paragraph bridging Col.1 and Col. 2, page 557;

(Pasi teaches that an object is an instance of its immediate class and is a member of the superclass of its immediate class")

- "assigning an attribute to the upper level class, wherein the attribute describes the objects; and inheriting of the attribute by the lower level class" at the paragraph bridging Col.1 and Col. 2, page 557.

(Pasi teaches: "a subclass inherits the attributes and methods of its superclass")

- "wherein the attribute is within a first domain with regard to the upper level class, the attribute is within a second domain with regard to the lower level class, a second domain value set of the second domain is smaller than a first domain value set of the first domain" at page 562, Col. 1, 2nd paragraph;

(Pasi teaches a specific example in which hair-color attribute of the superclass C_2 is within a first domain value set {fair, light-brown, red, dark-brown, black} and hair-color attribute of the subclass C_1 is within a second domain value set {fair, light-brown, red}, which is smaller than the first domain value set)

- "the attribute is restricted to the second domain value set upon the inheriting" at page 562, Col. 1, 2nd paragraph;

(Pasi teaches that a default hair color attribute for an object (person) belonging to subclass C₁ is restricted to the second domain value set {fair, light-brown, red})

- “associating an item with a class within the class hierarchy such that all entries of a record of the item are non-empty” at page 562, Col. 1, 2nd paragraph.

(Pasi associates a person with the class “people living in Italy”, wherein all entries include a record describes the person’s hair-color, which must be non-empty because hair-color must have a value)

As per claim 2, Pasi teaches the method of arranging objects of claim 1, further comprising: “superceding said attribute of said upper level class by assigning an attribute to the lower level class, the attribute describing an object that is a member of the lower level class” at page 562, Col. 1, 2nd paragraph and page 563, Col. 1.

(Pasi teaches at page 563, Col. 1 that the new attribute characterizing the objects belonging to the subclass C₁ overriding (i.e., “superceding”) the attribute defined in the superclass C₂)

As per claim 3, Pasi teaches the method of arranging objects of claim 1, wherein “the attribute comprises a distinctive domain value set” at page 562, Col. 1, 2nd paragraph.

(Pasi teaches the hair-color attribute comprise a distinctive domain value set {fair, light-brown, red, dark-brown, black})

As per claim 4, Pasi teaches the method of arranging objects of claim 1, wherein “the class hierarchy further comprises a class below the lower level class in the class hierarchy, and further comprising: inheriting of the attribute by the class” at page 560, Fig. 1.

(Pasi teaches a hierarchical structure comprising four levels inheriting of the attribute by the class.)

As per claim 5, Pasi teaches the method of arranging objects of claim 1, further comprising: “expanding the class hierarchy horizontally by adding a class to the lower level class; and inheriting of the attribute by the class” at page 560, Fig. 2.

(Pasi teaches expanding the class hierarchy horizontally (Frame 1 and Frame 2) instead of vertically as seen in Fig. 1)

As per claim 6, Pasi teaches a hierarchical class architecture of objects stored in a memory comprising:

- “an upper level class; a lower level class, wherein the upper and lower level classes are stored in the memory” at the paragraph bridging Col. 1 and Col. 2, page 557;
- “a first domain value set of a first domain of the upper level class; a second domain value set of a second domain” at the paragraph bridging Col. 1 and Col. 2, page 557;
- “an attribute, wherein the attribute is assigned to the upper level class” at the paragraph bridging Col. 1 and Col. 2, page 557;

- “the attribute is within the first domain, the attribute is within the second domain, the objects are members of at least one of the upper level class and the lower level class, the attribute describes the objects” at page 562, Col. 1, 2nd paragraph,
- “the lower level class is configured to inherit the attribute” at the paragraph bridging Col. 1 and Col. 2, page 557;
- “the second domain value set is smaller than the first domain value set, and the attribute is restricted to the second domain value set upon the attribute being inherited by the lower level class” at page 562, Col. 1, 2nd paragraph;
- “an item having a record with a plurality of entries, wherein the item is associated with a class within the class hierarchy such that the entries are non-empty” at page 562, Col. 1, 2nd paragraph

As per claim 7, Pasi teaches the hierarchical class architecture of claim 6, further comprising: “an additional attribute, wherein the additional attribute is assigned to the lower level class, and the attribute describes an object in the lower level class” at Fig. 3, elements 96, 98. page 562, Col. 1, 2nd paragraph and page 563, Col. 1.

As per claim 8, Pasi teaches the hierarchical class architecture of claim 6, wherein “the attribute comprises a distinctive domain value set” at page 562, Col. 1, 2nd paragraph.

As per claim 9, Pasi teaches the hierarchical class architecture of claim 6, further comprising: “a class, wherein the class is below the lower level class in the

hierarchical class architecture, and the class is configured to inherit the attribute” at page 560, Fig. 1.

As per claim 10, Pasi teaches the hierarchical class architecture of claim 6, wherein “the lower level class is configured to be expanded horizontally by virtue of being configured to provide for addition of a class, and the class is configured to inherit the attribute” at Fig. 2, page 560.

As per claim 11, Pasi teaches a computer system comprising:

- “a processor, a computer readable medium coupled to the processor; and computer code, encoded in the computer readable medium, configured to cause the processor to: set a class hierarchy, wherein the class hierarchy comprises an upper level class and a lower level class” at page 556, Col. 1 and the paragraph bridging Col. 1 and Col. 2, page 557.
- “the objects are members of at least one of the upper level class and the lower level class” at the paragraph bridging Col. 1 and Col. 2, page 557;
- “assign an attribute to the upper level class, wherein the attribute describes the objects; and provide inheritance of the attribute by the lower level class” at the paragraph bridging Col. 1 and Col. 2, page 557;
- “wherein the attribute is within a first domain with regard to the upper level class, the attribute is within a second domain with regard to the lower level class, a second domain value set of the second domain is smaller than a first domain value set of the first domain” at page 562, Col. 1, 2nd paragraph;

- “the attribute is restricted to the second domain value set upon the inheritance of the attribute by the lower level class” at page 562, Col. 1, 2nd paragraph;
- “associated an item with a class within the class hierarchy such that all entries of a record of the item are non-empty” at page 562, Col. 1, 2nd paragraph.

As per claim 12, Pasi teaches the computer system of claim 11, wherein “the computer code is further configured to cause the processor to: “assign an attribute to the lower level class, the attribute describing an object that is a member of the lower level class” at page 562, Col. 1, 2nd paragraph.

As per claim 13, Pasi teaches the computer system of claim 11, wherein “the attribute comprises a distinctive domain value set” at page 562, Col. 1, 2nd paragraph.

As per claim 14, Pasi teaches the computer system of claim 11, wherein “the class hierarchy further comprises a class below the lower level class in the class hierarchy, and the computer code is further configured to cause the processor to: provide inheritance of the attribute by the class” at Fig. 1, page 560.

As per claim 15, Pasi teaches the computer system of claim 11, wherein “the computer code is further configured to cause the processor to: expand the class hierarchy horizontally by adding a class to the lower level class; and provide inheritance of the attribute by the class” at Fig. 2, page 560.

As per claim 16, Pasi teaches an apparatus for arranging objects comprising:

- “means for setting a class hierarchy, wherein the class hierarchy comprises an upper level class and a lower level class” at the paragraph bridging Col. 1 and Col. 2, page 557;

- “the objects are members of at least one of the upper level class and the lower level class” at the paragraph bridging Col. 1 and Col. 2, page 557;
- “means for assigning an attribute to the upper level class, wherein the attribute describes the objects” at the paragraph bridging Col. 1 and Col. 2, page 557;
- “means for inheriting of the attribute by the lower level class” at the paragraph bridging Col. 1 and Col. 2, page 557;
- “wherein the attribute is within a first domain with regard to the upper level class, the attribute is within a second domain with regard to the lower level class, a second domain value set of the second domain is smaller than a first domain value set of the first domain” at page 562, Col. 1, 2nd paragraph;
- “and the attribute is restricted to the second domain value set by the means for inheriting” at page 562, Col. 1, 2nd paragraph;
- “means for associating an item with a class within the class hierarchy such that all entries of a record of the item are non-empty” at page 562, Col. 1, 2nd paragraph.

As per claim 17, Pasi teaches the apparatus of claim 16, further comprising:

- “means for superceding said attribute of said upper level class comprising means for assigning an attribute to the lower level class, the attribute describing an object that is a member of the lower level class” at page 562, Col. 1, 2nd paragraph and page 563, Col. 1;

As per claim 18, Pasi teaches the apparatus of claim 16, wherein “the attribute comprises a distinctive domain value set” at page 562, Col. 1, 2nd paragraph.

As per claim 19, Pasi teaches the apparatus of claim 16, wherein “the class hierarchy further comprises a class below the lower level class in the class hierarchy, and further comprising: means for inheriting of the attribute by the class” at Fig. 1, page 560.

As per claim 20, Pasi teaches the apparatus of claim 16, further comprising: “means for expanding the class hierarchy horizontally by adding a class to the lower level class; and means for inheriting of the attribute by the class” at Fig. 2, page 560.

As per claim 21, Pasi teaches a computer program product, encoded in computer readable media, comprising:

- “a first set of instructions, executable on a computer system, configured to set a class hierarchy, wherein the class hierarchy comprises an upper level class and a lower level class, and the objects are members of at least one of the upper level class and the lower level class” at the paragraph bridging Col. 1 and Col. 2, page 557;
- “a second set of instructions, executable on the computer system, configured to assign an attribute to the upper level class, wherein the attribute describes the objects; a third set of instructions, executable on the computer system, configured to provide inheritance of the attribute by the lower level class” at the paragraph bridging Col. 1 and Col. 2, page 557;
- “wherein the attribute is within a first domain with regard to the upper level class, the attribute is within a second domain with regard to the lower level class, a

second domain value set of the second domain is smaller than a first domain value set of the first domain” at page 562, Col. 1, 2nd paragraph;

- “and the attribute is restricted to the second domain value set by the third set of instruction” at page 562, Col. 1, 2nd paragraph;
- “a fourth set of instructions, executable on the computer system, configured to associate an item with a class within the class hierarchy such that all entries of a record of the item are non-empty” at page 562, Col. 1, 2nd paragraph.

As per claim 22, Pasi teaches the computer program product of claim 21, further comprising: “a fourth set of instructions, executable on the computer system, configured to supercede said attribute of said upper level class by virtue of being configured to assign an attribute to the lower level class, the attribute describing an object that is a member of the lower level class” at page 562, Col. 1, 2nd paragraph.

As per claim 23, Pasi teaches the computer program product of claim 21, wherein “the attribute comprises a distinctive domain value set” at page 562, Col. 1, 2nd paragraph.

As per claim 24, Pasi teaches the computer program product of claim 21, wherein “the class hierarchy further comprises a class below the lower level class in the class hierarchy, and further comprising: a fourth set of instructions, executable on the computer system, configured to provide inheritance of the attribute by the class” at Fig 1, page 560.

As per claim 25, Pasi teaches the computer program product of claim 21, further comprising: “a fourth set of instructions, executable on the computer system, configured

to expand the class hierarchy horizontally by adding a class to the lower level class; and a fifth set of instructions, executable on the computer system, configured to provide inheritance of the attribute by the class” at Fig. 2, page 560.

As per claim 26, Pasi teaches the method of arranging objects of claim 1, further comprising: “associating the upper level class with the first domain value set, and associating the lower level class with the second domain value set” at page 562, Col. 1, 2nd paragraph.

As per claim 27, Pasi teaches the method of arranging objects of claim 26, wherein “another attribute is within the second domain” at page 562, Col. 1, 2nd paragraph.

As per claim 28, Pasi teaches the method of arranging objects of claim 27, wherein “the another attribute is an overriding attribute” at page 563, Col. 1.

As per claim 29, Pasi teaches the method of arranging objects of claim 27, further comprising: “superceding the attribute with the another attribute, wherein the superceding is performed if the second domain is different from the first domain” at page 563, Col. 1.

As per claim 33, Pasi teaches the hierarchical class architecture of objects of claim 6, further comprising: “another attribute, wherein the another attribute is another attribute within the second domain ” at page 563, Col. 1.

As per claim 34, Pasi teaches the hierarchical class architecture of objects of claim 33, wherein “the another attribute is an overriding attribute” at page 563, Col. 1.

As per claim 35, Pasi teaches the hierarchical class architecture of objects of claim 33, wherein, “the another attribute is configured to supercede the attribute, and the another attribute supercedes the attribute if the second domain is different from the first domain” at page 563, Col. 1.

As per claim 38, Pasi teaches the computer system of claim 11, wherein “the computer code is further configured to cause the processor to: associate the upper level class with the first domain value set, and associate the lower level class with the second domain value set” at page 562, Col. 1, 2nd paragraph.

As per claim 39, Pasi teaches the computer system of claim 38, wherein “another attribute is within the second domain” at page 563, Col. 1.

As per claim 40, Pasi teaches the computer system of claim 39, wherein “the another attribute is an overriding attribute” at page 563, Col. 1.

As per claim 41, Pasi teaches the computer system of claim 39, wherein “the computer code is further configured to cause the processor to: supercede the attribute with the another attribute, if the second domain is different from the first domain” at page 563, Col. 1.

As per claim 44, Pasi teaches the apparatus of claim 16, wherein “the computer code is further configured to cause the processor to: associate the upper level class with the first domain value set, and associate the lower level class with the second domain value set” at page 562, Col.1, 2nd paragraph.

As per claim 45, Pasi teaches the apparatus of claim 44, wherein “another attribute is within the second domain” at page 562, Col. 1, 2nd paragraph.

As per claim 46, Pasi teaches the apparatus of claim 45, wherein "the another attribute is an overriding attribute" at page 563, Col. 1.

As per claim 47, Pasi teaches the apparatus of claim 45, further comprising: "means for superceding the attribute with the another attribute, wherein the superceding is performed if the second domain is different from the first domain" at page 562, Col. 1, 2nd paragraph.

As per claim 50, Pasi teaches the computer program product of claim 21, further comprising: "a fourth set of instruction, executable on the computer system, configured to associated the upper level class with the first domain value set, and a fifth set of instruction, executable on the computer system, configured to associate the lower level class with the second domain value set" at page 562, Col. 1, 2nd paragraph.

As per claim 51, Pasi teaches the computer program product of claim 50, wherein "another attribute is within the second domain " at page 562, Col. 1, 2nd paragraph.

As per claim 52, Pasi teaches the computer program product of claim 51, wherein "the another attribute is an overriding attribute" at page 563, Col. 1.

As per claim 53, Pasi teaches the computer program product of claim 51, further comprising: "a sixth set of instruction, executable on the computer system configured to supercede the attribute with the another attribute, if the second domain is different from the first domain" at page 562, Col. 1, 2nd paragraph.

Response to Arguments

5. Applicant's arguments filed November 1, 2004 have been fully considered but they are not persuasive. The examiner respectfully traverses applicant's arguments.

6. Regarding the rejection of claims 1-5, 26-29 under 35 U.S.C. 101, applicant argued at page 15 that "this method of the claimed invention is statutory subject matter because objects are instantiations, which are generated and manipulated by a computer. Therefore, arranging object in a class hierarchy is a method performed by a computer, and is not merely a representation of data". On the contrary, the examiner respectfully submits that the features upon which applicant relies (i.e., "generated and manipulated by a computer" or "performed by a computer") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Claims 1-5, 26-29 therefore remain rejected.

Regarding the rejection of claims **1-29,33-35,38-41,44-47,50-53** under 35 U.S.C 102(b), applicant argued at page 16-18 that Pasi does not teach or suggest "associating an item with a class within the class hierarchy such that all entries of a record of the item are non-empty". On the contrary, Pasi associates a person with the class "people living in Italy" (page 562, Col. 1, 2nd paragraph), wherein all entries include a record describes the person's hair-color, which must be non-empty because hair-color must have a value; as opposed to, for example, "work phone number", which could be an empty field, because a person may or may not have a work phone number.

In light of the foregoing arguments, the 35 U.S.C 102 rejection is hereby sustained.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh B. Pham whose telephone number is (703) 308-7299. The examiner can normally be reached on Monday through Friday 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E Breene can be reached on (703) 305-9790. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Khanh B. Pham
Examiner
Art Unit 2177

March 14, 2005

Erle S. Nassim
Primary Examiner